

# PATENT COOPERATION TREATY

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From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

To:

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NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing  
(day/month/year)

22.03.2005

Applicant's or agent's file reference  
05918-260WO1

**IMPORTANT NOTIFICATION**

International application No.  
PCT/US 03/40285

International filing date (day/month/year)  
16.12.2003

Priority date (day/month/year)  
16.12.2002

Applicant  
VELCRO INDUSTRIES B.V. ET AL.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Docketed By Practice Systems  
FURTHER ACT - 269001 - 269001

Docketed By Billing Secretary  
Due Date:

Name and mailing address of the international preliminary examining authority:

Initials: \_\_\_\_\_

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# PATENT COOPERATION TREATY

## PCT



### INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 05918-26WO1		<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/US 0340285	International filing date (day/month/year) 16.12.2003	Priority date (day/month/year) 16.12.2002	
International Patent Classification (IPC) or both national classification and IPC A61B5/022			
Applicant VELCRO INDUSTRIES B.V. ET AL.			

- This International preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 5 sheets, including this cover sheet.  
  
☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).  
  
 These annexes consist of a total of 8 sheets.

- This report contains indications relating to the following items:
  - I ☒ Basis of the opinion
  - II ☐ Priority
  - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
  - IV ☐ Lack of unity of invention
  - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
  - VI ☐ Certain documents cited
  - VII ☐ Certain defects in the international application
  - VIII ☐ Certain observations on the international application

Date of submission of the demand  13.07.2004	Date of completion of this report  22.03.2005
Name and mailing address of the international preliminary examining authority:   European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer  Knüpling, M  Telephone No. +31 70 340-2891  

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. **PCT/US 0340285**

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1-24 as originally filed

**Claims, Numbers**

1-56 filed with telefax on 06.12.2004

**Drawings, Sheets**

1/20-20/20 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☒ the claims, Nos.: 2,47
- ☐ the drawings, sheets:

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5. ☒ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

**see separate sheet**

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes: Claims	1-56
	No: Claims	
Inventive step (IS)	Yes: Claims	1-56
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-56
	No: Claims	

**2. Citations and explanations**

**see separate sheet**

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**Re Item I**

The amendments carried out resulted in new dependencies which have no basis in the originally filed application. Specifically, previous claim 4 was dependent on claim 3 whereas new claim 4 depends on claim 1.

**Re Item V**

Reference is made to the following documents:

- D1: US-B1-6 202 260 (SHEPARD WILLIAM H ET AL) 20 March 2001 (2001-03-20)  
D2: US-A-5 700 340 (JOHNSON DAVID ET AL) 23 December 1997 (1997-12-23)

The document D1 is regarded as being the closest prior art to the subject-matter of claim 1 and shows (the references in parentheses applying to this document):

An inflatable product (bag 138 is made of polyethylene; see col. 15, l. 20 - 25. Polyethylene is airtight. Furthermore, the closure strip 100 welded to bag body 140 providing a reclosable, airtight seal; see col. 14, l. 59 - 67. Consequently, bag 138 is considered as being inflatable.) comprising:

overlapped areas of flexible material defining there between an inflatable pouch (138; fig. 4b), the pouch bounded by bonded regions of the flexible material and defining a limited opening for inflating the pouch (fig. 4b),

wherein the flexible material includes multiple fastening regions (104, 106) including

a first fastening region (106) in which an array of fastener elements with stems (110) are arranged, the stems integrally molded with and extending from a common resin substrate (col. 12, l. 1 - 11, and

a second fastening region (104) of fibrous loops releasably engageable with the fastener elements.

The subject-matter of claim 1 differs from this known device in the following feature:

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a valve to inhibit egress of fluid from the inflatable pouch through the limited opening, once inflated.

The subject-matter of claim 1 is therefore new (Article 33(2) PCT).

The problem to be solved by the present invention may be regarded as how to control inflation and deflation of the pouch.

The solution to this problem proposed in claim of the present application is considered as involving an inventive step (Article 33(3) PCT) since in D1 there is no indication to inflating or deflating the pouch. In deed, D1 relates to a bag, and the man skilled in the art would not consider providing a valve to a bag.

The same reasons, mutatis mutandis, apply to corresponding claim 46.

Claim 41 differs from the disclosure of D1 in the feature of the blood pressure cuff. D1 relates to bags and no hint can be found with regard to blood pressure cuffs.

D2 discloses a fastener tape 103 with integrally molded stems extending from a common substrate (col. 3, l. 41 - 45). Furthermore, D2 discloses that this tape can be used for blood pressure cuffs (col. 1, l. 12 - 17). However, no indication can be found in D2 as to using the tape material for forming a compartment for the inflatable pad. This feature solves the problem of how to reduce manufacturing costs of blood pressure cuffs since the step of bonding the stems to the cuff straps is avoided. Neither the problem nor the solution is addressed in the prior art.

The same reasons, mutatis mutandis, apply to corresponding claim 58.

The subject-matter of claim 1 is therefore new and inventive (Article 33(2) and (3) PCT).

Claims 2 - 40 are dependent on claim 1, claims 47 - 57 are dependent on claim 46, claims 42 - 45 are dependent on claim 41, and as such also meet the requirements of the PCT with respect to novelty and inventive step.

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**WHAT IS CLAIMED IS:**

1. An inflatable product

(10,150,200,300,400,500,600,800,810,824,850,900,1000,1050) comprising:

overlapped areas of flexible material defining therebetween an inflatable pouch (12,119,302,402,502,602,804,818,852,803,1052), the pouch bounded by bonded regions (38,121/124,208/210/212/214/216/218/220/222,514,618,802) of the flexible material and defining a limited opening (24,212,820) for inflating the pouch, and

a valve (26,140,230,308,406,858,806,928,1022,1056) to inhibit egress of fluid from the inflatable pouch through the limited opening, once inflated,

wherein the flexible material includes multiple fastening regions including

a first fastening region (20,158,228,416,424,426,905) in which an array of fastener elements (21,904,1008) with stems are arranged, the stems integrally molded with and extending from a common resin substrate (23,1010), and

a second fastening region (18,156,226,414,428,508,905) of fibrous loops (906) releasably engageable with the fastener elements (21,904,1008).

2. (Cancelled)

3. The inflatable product of claim 1, wherein the valve defines a passage that is collapsible in response to internal pouch pressure. (See, for example, Figs. 2A and 2B.)

4. The inflatable product of claim 1, wherein the valve comprises two sheets of flexible material sealed together in face-to-face relation along either side of the passage.

5. The inflatable product of claim 1, wherein the valve comprises an inlet and a plug configured to seal the opening. (See, for example, Fig. 18B.)

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6. The inflatable product of any of the above claims, wherein the resin substrate from which the fastener element stems extend comprises a region of the flexible material. (See, for example, Figs. 1C and 1D.)
7. The inflatable product of any of the above claims, wherein the second fastening region overlaps the pouch. (See, for example, Fig. 7.)
8. The inflatable product of any of the above claims, wherein the array of fastener element stems overlaps the pouch. (See, for example, Fig. 8.)
9. The inflatable product of any of the above claims, wherein the second fastening region covers substantially all of a front side of the product. (See, for example, Fig. 7.)
10. The inflatable product of any of the above claims, wherein the resin substrate is bonded to and extends from an edge of the flexible material.
11. The inflatable product of any of the above claims, wherein the pouch comprises multiple hydraulically connected compartments (see, for example 202 and 204 of Fig. 9) defined between extensions of the bonding regions.
12. The inflatable product of any of the above claims, wherein the opening is defined within a fitment (506,604) secured to the flexible material.
13. The inflatable product of claim 12, wherein the fitment is configured to mate with a flexible hose (652) for hydraulic communication with the pouch.
14. The inflatable product of any of the above claims further comprising a compartment (704,806,820,854,918) defined between adjacent areas of the flexible material and bounded by bonded regions of the flexible film material, the compartment defining an opening for receiving an object.



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15. The inflatable product of claim 14, wherein the first and second fastening regions (905) are positioned at the opening of the compartment to form a releasable closure for releasably closing the opening of the compartment. (See, for example, Fig. 19B.)
16. The inflatable product of any of claims 14 and 15, wherein the compartment (704,806,820,854,918) and the inflatable pouch share a wall (808,822,940,942) of flexible material.
17. The inflatable product of any of claims 14-16 further comprising a thermal pad positioned within the compartment.
18. The inflatable product of any of the above claims, wherein the flexible material forms a strap (14,16,154,410,412,418,420,504,606,1054) carrying at least one of the first and second fastening regions, the strap being of sufficient length to wrap about an object and engage the first and second fastening regions to secure the pouch to an object.
19. The inflatable product of any of the above claims, wherein the flexible material comprises film.
20. The inflatable product of claim 19, wherein the film has a thickness of between about 0.00127 and 0.02032 cm (between about 0.0005 and 0.008 inch).
21. The inflatable product of claim 20, wherein the film has a thickness between about 0.00254 and 0.0127 cm (between about 0.001 and 0.005 inch).
22. The inflatable product of claim 21, wherein the film has a thickness of about 0.01016 cm (about 0.004 inch).
23. The inflatable product of any of the above claims, wherein the flexible material comprises polyethylene.

24. The inflatable product of any of the above claims, wherein the fibrous loops comprise fibers formed from a loop material selected from a group consisting of a non-woven material, a woven material and a knit material.
25. The inflatable product of claim 24, wherein the loop material is bonded to the flexible material.
26. The inflatable product of any of claims 24 and 25, wherein the loop material comprises a dimensionally stable loop material.
27. The inflatable product of any of the above claims, wherein the fastener elements include loop-engageable heads extending laterally from the stems in discrete directions.
28. The inflatable product of any of the above claims, wherein the fastener elements include loop-engageable heads extending laterally from the stems in multiple directions.
29. The inflatable product of any of the above claims, wherein the fastener elements and fibrous loops are configured to enable disengagement of the first and second fastening regions by application of a peeling force of less than about 0.35 Newtons per centimeter ( about 0.2 pounds of force per transverse inch) of engaged width of the engaged fastener elements.
30. The inflatable product of claim 29, wherein the fastener elements and fibrous loops are configured to enable disengagement of the first and second fastening regions by application of a peeling force of less than about 0.18 Newtons per centimeter (about 0.1 pounds of force per transverse inch) of engaged width of the engaged fastener elements.

31. The inflatable product of any of the above claims having an overall weight of less than about 150 grams per square meter of overall area of one broad side of the product in an uninflated state.
32. The inflatable product of claim 1 in the form of a blood pressure cuff. (See, for example, Fig. 14.)
33. The inflatable product of claim 32 comprising a fitment (506,604) for attachment to a flexible hose (652), the fitment providing access to the pouch.
34. The inflatable product of claim 33 comprising a second fitment.
35. The inflatable product of claim 33, wherein the fitment defines more than one passages.
36. The inflatable product of claim 1 in the form of a reclosable bag, the flexible material defining a compartment (918) for containing an object. (See, for example, Fig. 19B.)
37. The inflatable product of claim 1 in the form of a splint for confining a body part of a patient. (See, for example, Fig. 11.)
38. The inflatable product of claim 37, wherein the splint defines a hole (306,408) therethrough, shaped to receive a part of a human body.
39. The inflatable product of claim 1 in the form of a floatation device and configured to be strapped about a human body. (See, for example, Fig. 18.)
40. The inflatable product of claim 39 in the form of a life jacket, wherein the pouch capable of inflating to an amount capable of keeping a person afloat in water.
41. An inflatable blood pressure cuff (700) comprising:

a compartment (704) defined between overlapped areas of flexible film material and bound by bonded regions of flexible film material, the compartment defining an opening sized to receive an inflatable pad; and

an inflatable pad (702) positioned within the compartment, the compartment configured to allow the inflatable pad to expand while positioned within the compartment;

wherein the flexible film material includes multiple fastening regions including a first fastening region in which an array of fastener elements including stems are arranged, the stems integrally molded with and extending from a resin base, and a second fastening region of fibrous loops releasably engageable with the fastener elements. (See, for example, Fig. 15.)

42. The inflatable blood pressure cuff of claim 41, wherein the inflatable pad comprises a fitment allowing communication with the inflatable pad.

43. The inflatable blood pressure cuff of claim 42, wherein the fitment is configured to mate with a flexible hose for hydraulic communication with the pad.

44. The inflatable blood pressure cuff of any of claims 41-43 wherein the second fastening region overlaps the compartment. (Sec, for example, Fig. 15.)

45. The inflatable blood pressure cuff of any of claims 41-44, wherein the fibrous loops of the second fastening region comprise a dimensionally stable loop material that inhibits an increase in bounded area of the compartment during inflation.

46. A method of forming an inflatable product, the method comprising:  
overlapping two areas of flexible sheet material;

bonding the overlapped areas in selected regions to form a pouch  
(12,119,302,402,502,602,804,818,852,803,1052) defined between overlapped areas and bounded by the bonded regions  
(38,121/124,208/210/212/214/216/218/220/222,514,618,802), the pouch defining a limited opening (24,212,820) for inflating the pouch;

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attaching a valve (26,140,230,308,406,858,806,928,1022,1056) to the pouch at the limited opening, and

including on the sheet material both an array of fastener elements (21,904,1008) comprising stems integrally molded with and extending from a common resin substrate (23,1010), and a region of fibrous loops carried by the sheet material and releasably engageable with the fastener elements.

47. (Cancelled)

48. The method of claim 46, wherein the valve defines a passage that is collapsible in response to internal pouch pressure. (See, for example, Figs. 2A and 2B.)

49. The method of claim 46, wherein the valve comprises two sheets of flexible material sealed together in face-to-face relation along either side of the passage.

50. The method of claim 46, wherein the valve comprises an inlet and a plug configured to seal the opening. (See, for example, Fig. 18B.)

51. The method of any of claims 46-50, wherein the array of fastener elements are formed by introducing a molten resin (46) to a gap (50,60) defined adjacent a mold roll (52) surface, the mold roll including an array of cavities (56) for molding fastener element stems, the resin introduced such that resin enters the cavities to form fastener element stems while excess resin forms the substrate (23).

52. The method of claim 51 comprising forming the sheet material of the molten resin.

53. The method of claim 51 comprising introducing a preformed sheet material (58,63,66) to the gap under conditions to bond the substrate to a surface of the sheet material.

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54. The method of any of claims 51-53 comprising post-forming distal ends of the stems to form engageable heads extending outwardly from the stems.
55. The method of any of claims 51-53, wherein the cavities are shaped to form loop-engageable fastener elements.
56. The method of any of claims 51-55 comprising introducing a preformed loop material (66) to the gap under conditions to permanently bond the loop material to the sheet material.
57. The method of any of claims 46-56 comprising:  
overlapping two different areas of the flexible material; and  
bonding the different overlapped areas in selected regions to form a second pouch (704,806,820,854,918) defined between overlapped areas and bounded by the bonded regions.
58. A method of measuring blood pressure, the method comprising:  
providing an unused blood pressure cuff comprising  
    overlapped areas of flexible material defining therebetween an inflatable pouch, the pouch bounded by bonded regions of the flexible material and defining a limited opening for inflating the pouch;  
    wherein the flexible material includes multiple fastening regions including  
        a first fastening region in which an array of fastener elements with stems are arranged, the stems integrally molded with and extending from a common resin substrate; and  
        a second fastening region of fibrous loops releasably engageable with the fastener elements;  
wrapping the blood pressure cuff around a portion of a patient's body;  
inflating the pouch to a pressure associated with blood pressure measurement;  
removing the blood pressure cuff from around the portion of the patient's body;  
and  
discarding the blood pressure cuff.